PANORAMA dtv
THE VIDEO DIVISION OF WOHLER TECHNOLOGIES

MON3-2W/HR
MON4-2W/HR

(Document P/N **821647** Rev-**B**)

HD/SDI High-Res Video Monitors

with 4.3" High-Resolution LCD Video Displays,
Selectable 16:9 or 4:3 Aspect Ratio,
SDI or HD-SDI Inputs and Buffered/Equalized
Outputs (on BNC), and SDI Lock Indication LEDs

User Manual

CONTENTS

Title and Contents 1

Important Safety Instructions and Introduction 2

Section 1: General Features and Specifications 3

Warranty 4

Description and Features 5

Applications and Specifications 6

LCD Display Optical Characteristics 6

LCD Display Video Raster Format Parameters 6

Installation 6

Section 2: Operation 7

Front Panel Features 8

Rear Panel Features 10

Section 2: Technical information 13

Tally Control Connections 14

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Important Safety Instructions

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8) Do not install near any heat source such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched, particularly at plugs convenience receptacles and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with the cart stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15) Do not expose this apparatus to rain or moisture.
16) The apparatus shall be connected to a mains socket outlet with a protective earthing connection.

CAUTION!

In products featuring an audio amplifier and speakers, the surface at the side of the unit, where the audio amplifier heat sink is internally attached, may get very hot after extended operation. When operating the unit excercise caution when touching this surface and ensure that external materials which may be adversely affected by heat are not in contact with it. There is a Hot Surface label (see diagram) attached to the aforementioned surface of the product.

Introduction

Congratulations on your selection of a PANORAMAdtv product. We are confident it represents the best performance and value available, and we guarantee your satisfaction with it.

If you have questions or comments you may contact us at:

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Section 1

General Features and Specifications

Warranty

Description

Features

Applications

General Specifications

LCD Display Optical Characteristics

LCD Display Video Raster Format Parameters

Installation

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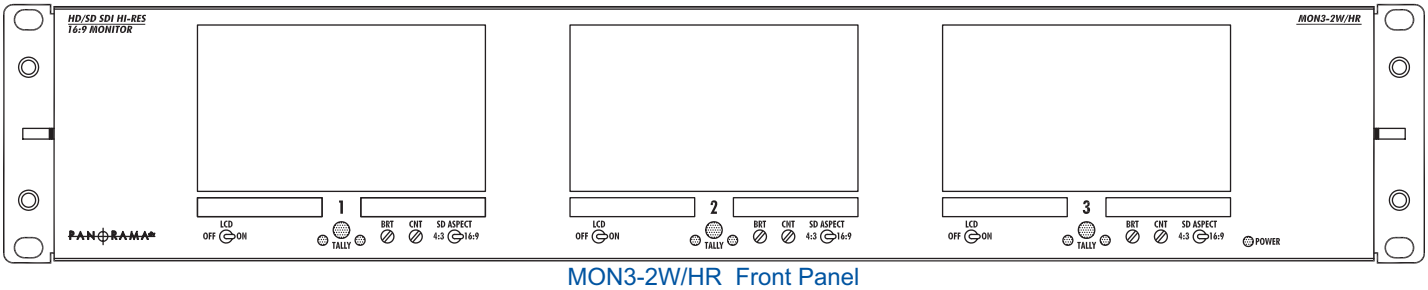
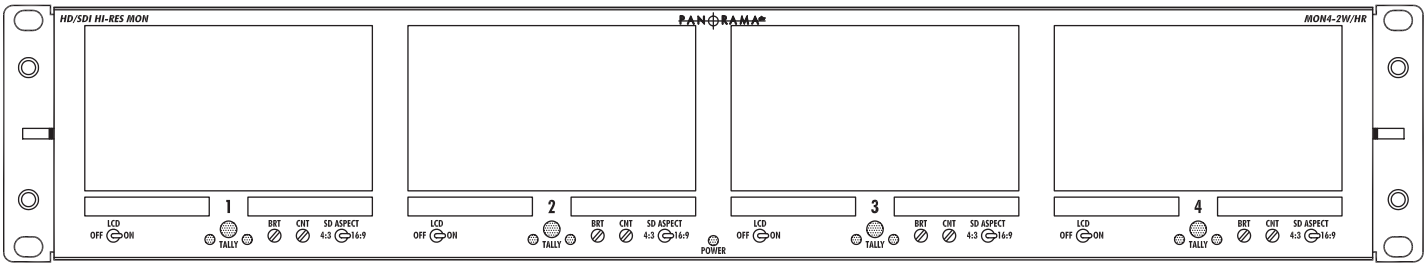
PANORAMA dtv
THE VIDEO DIVISION OF WOHLER TECHNOLOGIES

MON3-2W/HR and MON4-2W/HR

Multi-Display HD/SDI Digital High-Resolution Video Monitors



MON3-2W/HR Front Panel



MON4-2W/HR Front Panel

Description

The **MON3-2W/HR** and **MON4-2W/HR** units are multi-display high-resolution video monitors capable of monitoring either Standard Definition (SD) or High Definition (HD) SDI signals using an all digital signal processing (DSP) path. They are 2U in height and are mounted in full-rack width chassis designed to install into a industry standard 19" rack.

Video displays for both models are high-resolution 4.3” wide screen format active matrix TFT LED back-lit LCD screens offering front panel selection between 4:3 and 16:9 aspect ratios for SD-SDI signals. The **MON3-2W/HD** model features three LCD displays, while the **MON4-2W/HD** model features four LCD displays. Each LCD can display standard or high definition NTSC or PAL digital video signals and automatically detects and accomodates these formats for display. Each display features recessed front panel trim pot controls for contrast and brightness and a set of three color LEDs (red, green, and amber) for tally indication. Displays can be individually turned on and off using front panel toggle switches.

Each input section (on the rear panel) features an SDI input and an SDI output (buffered and equalized) on BNC connectors and a green LED indicating SDI lock status. A DB-25 connector on the rear panel can be interfaced to most tally systems.

Features

- Video displays: high resolution color 4.3” widescreen LCDs with 16:9 aspect ratio and LED backlighting
- HD-SDI or SD-SDI (auto-sensing) input and a buffered and equalized HD/SD-SDI output for each monitoring channel.
- SDI "lock" indication LED for each input section on rear panel
- Selectable native 16:9 or pillar boxed 4:3 aspect ratio of SD-SDI signals for each display
- Separate ON/OFF switch for each display
- Wide viewing angle
- Fits in a 2U standard 19" rack space
- Recessed front panel trim pot controls for brightness and contrast
- Minimal power dissipation for a low operating temperature
- Low power consumption
- Power indication LED
- Internal universal AC mains power supply
- Tally indicator LEDS (red, green, amber) for each display and a DB-25 connector with universal interface

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Applications

The **MON3-2W/HR** and **MON4-2W/HR** units are ideal for video monitoring for mobile trucks, news and transmission control rooms, duplication and post production applications. Built and rigorously tested in the USA, the **MON3-2W/HR** and **MON4-2W/HR** units are backed by a strong warranty and a "Satisfaction Guaranteed" return policy.

General Specifications

Display Size (diagonal):	4.3" (109.2 mm)
Display Type:	High-resolution TFT LCD ,Transmissive
Video Formats:	NTSC/PAL autosensing
Signal Input Type:	75 ohm BNC (SMPTE 259M, SMPTE 292M autodetect)
Display Image Controls:	Brightness and contrast
Aspect Ratio:	**HD-SDI** = 16:9, **SD-SDI** = 4:3 or 16:9
Active Area (HxV):	95.04 mm X 53.856 mm
Pixel Format (HxV):	480 X 272 Pixels 1 Pixel = R+G+B dots
Pixel Pitch (HxV):	0.198 mm X 0.198 mm
Pixel response Time:	30 ms rising (typ.); 30 ms falling (typ.)
Color Configuration:	RGB Vertical Stripes
Color Numbers:	1.6 million
Viewing Angle:	top=80°, bottom=80°, left=80°, right=80°
Contrast Ratio:	400 (typ.)
White Luminance:	165 (typ.) NITs (cd/m)
LED Backlight Life:	10,000 hours (avg.). to specified reduction
Power Consumption:	**MON3-2W/HR** = 14 W **MON4-2W/HR** = 18 W
Power Supply:	100 to 240VAC, 47 to 63Hz, universal input, internal, CE & UL approved
Chassis Type:	2U, 19" rack mounting (EIA-310D)
Dimensions (HxWxD):	3.35 x 19 x 5.6" (85 x 482.6 x 142.2 mm)
Weight:	7 lbs (3.175 kg)

Units are designed to meet, at time of manufacture, all currently applicable product safety and EMC requirements, such as those of CE. Features and specifications subject to improvement without notice.

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LCD Display Optical Characteristics

Parameter		Symbol	Condition	MIN	TYP	MAX	Unit
Viewing Angle Range	Horizontal	θ21, θ22	CR > 10	–	80	–	Degree
	Vertical	θ11		–	80	–	Degree
		θ12		–	80	–	Degree
Contrast Ratio		CR	θ = 0°	100	400	–	
Response Time	Rise	Tr	θ = 0°	–	30	45	ms
	Decay	Td		–	30	45	ms
Chromaticity of White		x		0.246	0.296	0.346	
		y		0.293	0.343	0.393	
Luminance of White		X_{L1}	–	165			cd/m

LCD Display Video Raster Format Parameters

Format	Scan Format Standards	Frame Rate	Lines	Active Lines	Samples	Active Samples
SDTV, 54	RP 174	60i	525	507/487*	3432	2880
SDTV, 36	SMPTE 267	60i	525	507/487*	2288	1920
SDTV, 27	SMPTE 125	60i	525	507/487*	1716	1440
SDTV, 54	ITU-R BT 601.5	50i	625	577	3456	2880
SDTV, 36	ITU-R BT 601.5	50i	625	577	2304	1920
SDTV, 27	ITU-R BT 601.5	50i	625	577	1728	1440
HDTV, 74.25	SMPTE 260	30i	1125	1035	2200	1920
HDTV, 74.25	SMPTE 274	30i	1125	1080	2200	1920
HDTV, 74.25	SMPTE 274	30p	1125	1080	2200	1920
HDTV, 74.25	SMPTE 274	25i	1125	1080	2640	1920
HDTV, 74.25	SMPTE 274	25p	1125	1080	2640	1920
HDTV, 74.25	SMPTE 295	25i	1250	1080	2376	1920
HDTV, 74.25	SMPTE 274	24p	1125	1080	2750	1920
HDTV, 74.25	SMPTE 296 (1, 2)	60p	750	720	1650	1280

Installation

Unpacking

Unpack the unit from the shipping container and inspect all articles for shipping damage. If you find any damage, notify the shipping carrier immediately for claims adjustments. Compare the shipping box contents to the packing slip. Contact our PANORAMAdtv sales representative if there are any unexplained shortages.

Cooling and Airflow

No special physical mounting considerations are necessary regarding unit heat dissipation except under adverse conditions. Provided the ambient temperature inside the mounting enclosure does not exceed 40 degrees Celsius (104 degrees Fahrenheit), adjacent devices can be rack mounted (or stacked) in proximity to the unit. If the above temperature is exceeded, allow a 1RU (1.75”/44.45mm) space above and below the unit for air circulation.

Rack Mounting

The unit mounts in a standard 19" rack and takes up 2U of vertical space.

General Installation Recommendations

Recommended Cable Type: Belden 1694A (or equivalent). Note that the HD receiver of the monitor is optimized for a maximum cable length of 140 meters (460 ft) for **HD-SDI** (1.485 GB/s) inputs and maximum cable length of 350m (1149 ft) for **SD-SDI** (270 MB/s) inputs.

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Section 2

Operation

Front Panel Features

Rear Panel Features

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Front Panel Features

Please refer to **Figure-2a** on the facing page to familiarize yourself with the front panel features of the **MON2-3W/HR** unit. The following sections describe these functions and are referenced, by number, to **Figure-2a**.

1 Video Display On/Off Switch

This switch is used to individually turn On/Off each video display.

2 Video Display

View the input video source here. Screen image **brightness** and **contrast** are adjustable by two manual controls (**Item 4**). Supported **PAL/NTSC, HD,** and **SD** formats are automatically detected and accomodated. See page **5** for specifications and pages **6** for more technical information about these high-resolution LCD displays.

3 Tally Indication LEDs

This set of three color LEDs is used for tally status indication of the associated display. From left to right, LED colors are GREEN, RED (center), and AMBER. Refer to page **14** for tally connection details.

4 Video Display Controls (Brightness/Contrast)

The LCD video displays are adjustable using these two image controls:

- **BRIGHTNESS** - adjust for desired screen brightness.
- **CONTRAST -** adjust for desired image scene, dark-to-bright contrast.

5 Video Display Aspect Ratio Select Switch

This switch selects either **16:9** or pillar boxed **4:3** aspect ratio for **SD-SDI** signals in the associated display. Note that the aspect ratio for **HD-SDI** video signals is always **16:9** regardless of the setting of this switch.

6 Power Indication LED

This LED glows GREEN to indicate the units **Power Connector** (**Item A**, page **10**) is connected to mains power and an operation voltage is present.

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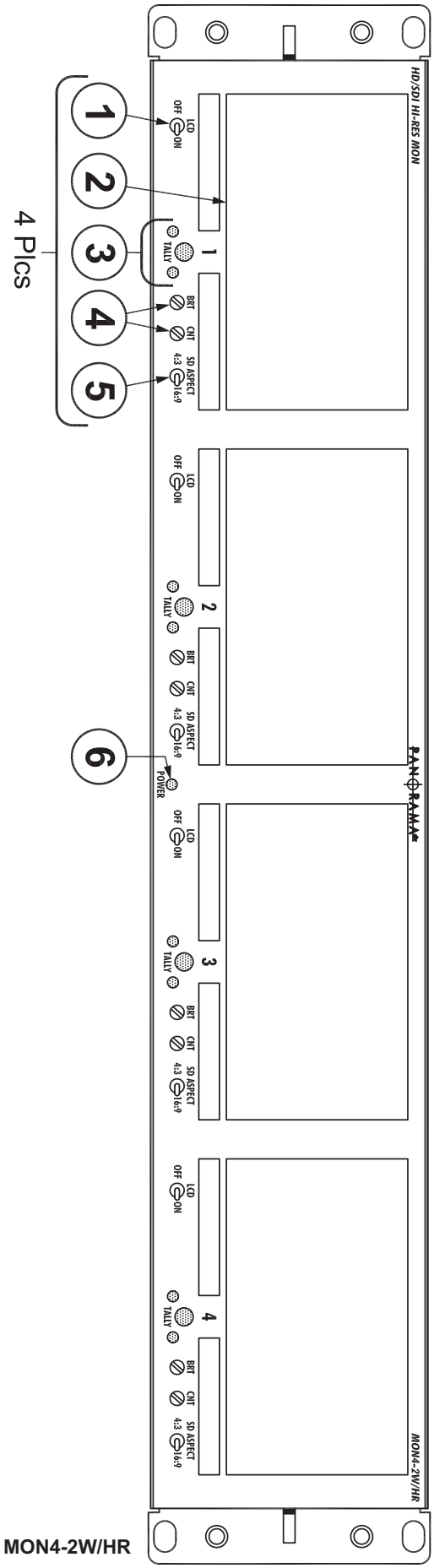
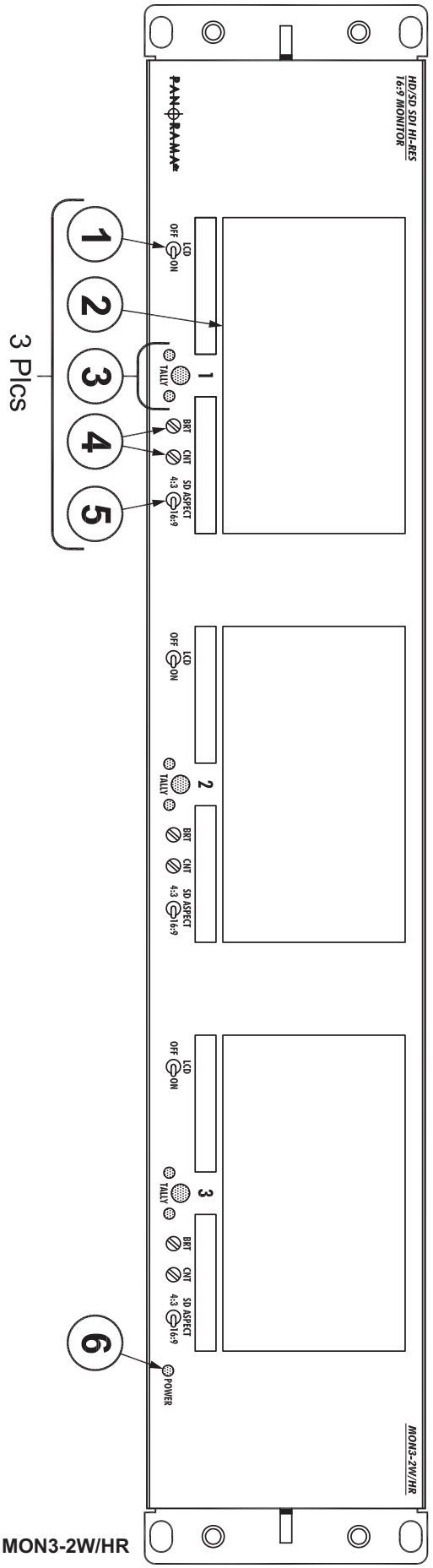


MON4-2W/HR



MON3-2W/HR

Figure-2a: Front Panel Features

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Rear Panel Features

Please refer to **Figure-2b** on the facing page to familiarize yourself with the rear panel features of the **MON2-3W/HR** unit. The following sections describe these features and are referenced, by letter, to **Figure-2b**.

A Power Connector

Attach the included external 24V power supply between this connector and mains power. The front panel **Power LED** (**Item 6**, page **8**) will glow GREEN to indicate that an operating voltage is present.

B SDI Output Connector

This connector outputs a buffered and equalized copy of the **SD-SDI** or **HD-SDI** signal entering the associated **SDI Input Connector** (**Item C**).

C SDI Input Connector

This female BNC connector input accepts either **SD-SDI** or **HD-SDI** inputs of various **SMPTE** standards (see **LCD Display Video Raster Format Parameters** table on page **6**) and are terminated at **75Ω**.

D SDI Lock Indication LED

This LED glows GREEN to indicate that the **SDI** source signal connected to the associated **SDI** input is "locked".

E Tally Control Connector

This 25-pin sub-miniature female “D” connector (DB-25) allows you to illuminate the individual monitor **Tally Indication LED**s (**Item 3**, page **8**) on the front panel. Connection details are described on page **14**.

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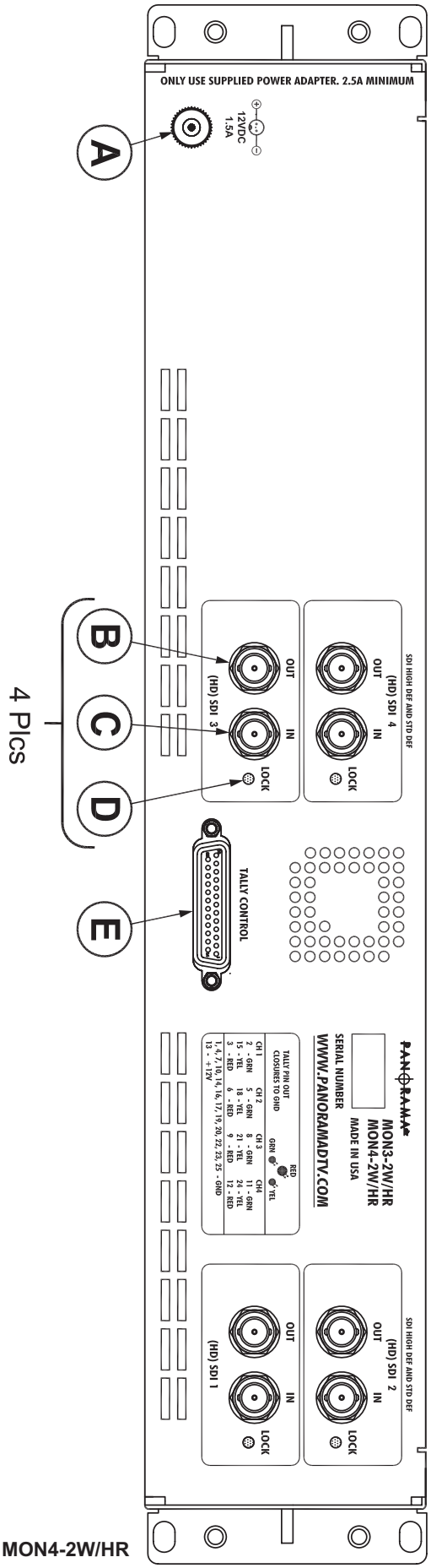

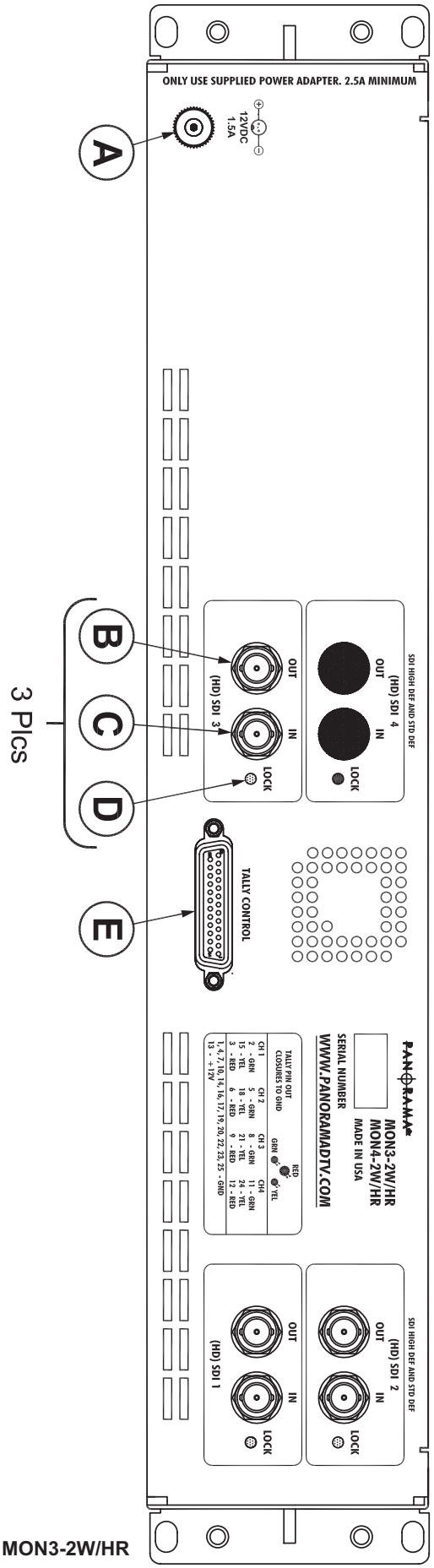

Figure-2b: Rear Panel Features

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Section 3

Technical Information

Tally Control Connections

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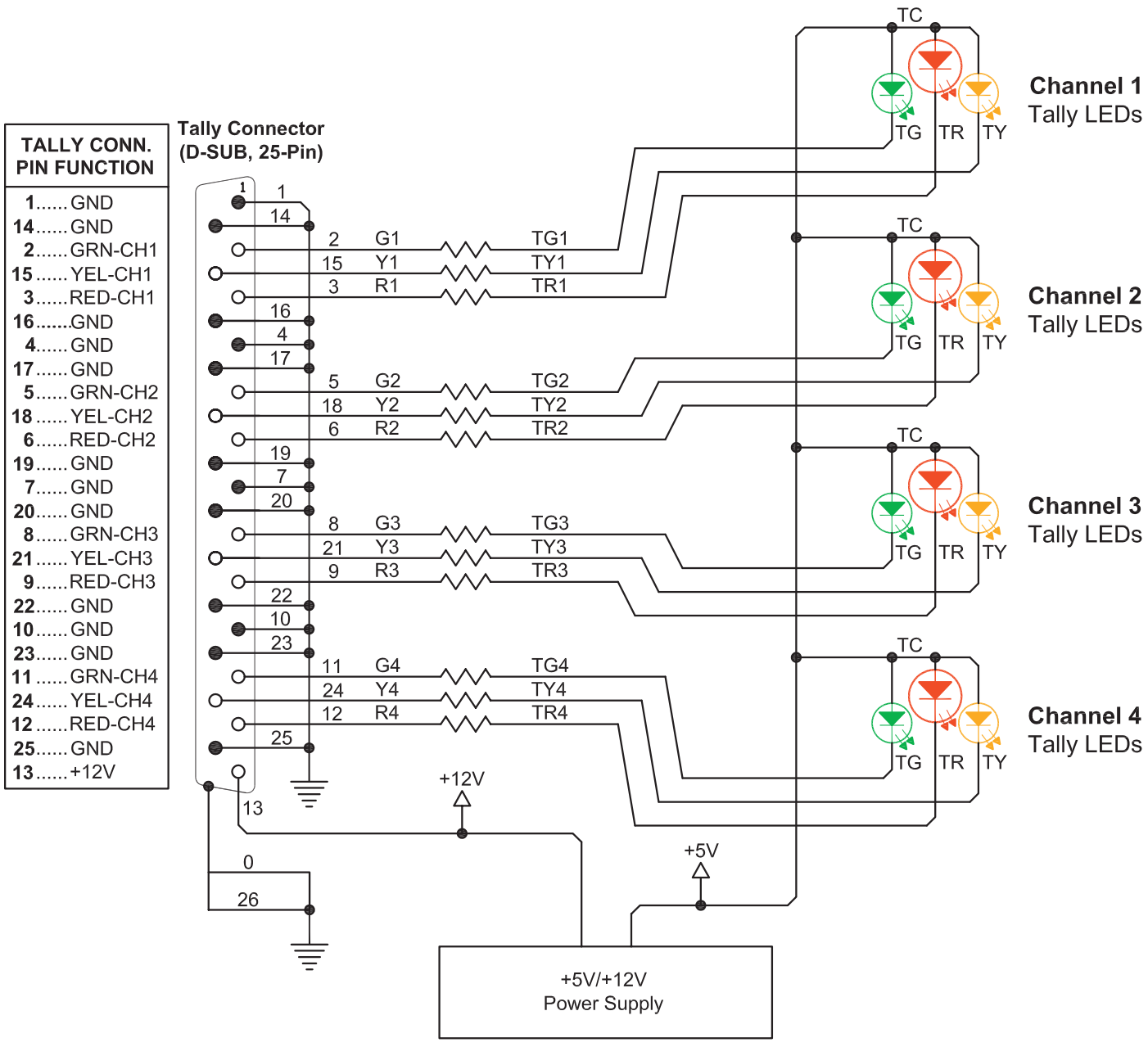
Tally Control Connections

Each LCD display on the front panel has three **Tally Indication LEDs** associated with it; one large RED LED with a small GREEN LED to the left and a small YELLOW LED to the right. Interface is provided to the LEDs via the **Tally Control Connector** located on the chassis rear panel. LEDs are lit by grounding the appropriate pins. See the diagram below for **Tally Control Connector** pinout functions and internal wiring of the Tally LEDs inside the unit.

Note that while the **MON4-2W/HR** uses all four tally circuits, The **MON3-2W/HR** uses only the first three tally circuits.

Typical operation would utilize dry contact enclosures from the LED color/pin to ground. Open collector and TTL level devices may also be utilized to control tally LED illumination.



MON Internal Tally Wiring

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NOTES:

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